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UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/848,721	05/02/2001	Jason McCartney	MS1-904US	8414

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EXAMINER
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ART UNIT	PAPER NUMBER
2144	

DATE MAILED: 05/27/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on <u>12/31/2005</u>.

2a) ☐ This action is **FINAL**.   2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) <u>1-74</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) <u>1-28 and 56-69</u> is/are allowed.

6) ☒ Claim(s) <u>29, 31-38, 41, 45-55, 70, 72 and 74</u> is/are rejected.

7) ☒ Claim(s) <u>30, 39, 40, 42-44, 71 and 73</u> is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☒ The drawing(s) filed on <u>05/02/2001</u> is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☐ All   b) ☐ Some *   c) ☐ None of:

      1. ☐ Certified copies of the priority documents have been received.

      2. ☐ Certified copies of the priority documents have been received in Application No. _____.

      3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ▓ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

1.   This application has been examined. Claims 1-74 are pending.

Allowable Subject Matter

2.   Claims 1, 12, 28, 56 and 69 (**1**-11, **12**-27, **28**, **56**-68 and **69**) are
allowed.

The following is an examiner's statement of reasons for allowance: The
closest prior art of record (combined teachings of <u>Kumaki</u> [(U.S. Patent Number
6,219,716) and <u>Sebastian</u> (U.S. Patent Number 6,253,264)] applied in the
rejection of claims 29, 37, 38, 55, 70 and 74 below substantially disclosed the
invention as claimed. See Claim rejection applied to Claims 29, 37, 38, 55, 70
and 74 below.

However, none of the prior art of record singularly or in combination
teach or suggest a method or system of compressing data set having semantic
information by determining a compassion function based on the commonality
of the data type (common/semantic information in the individual records of
the data set) encoding the data set using the determined compression function
in combination with the functional limitation of transmitting the encoded
data set <u>and an expansion function including information that is common to
the individual records in the data set; to a destination device and expanding
the encoded data set using the received expansion function at the destination
device.</u>

3.   Claims 30, 39, 40, 42-44, 71 and 73 are objected to as being dependent

upon a rejected base claim, but would be allowable if rewritten in independent

form including all of the limitations of the base claim and any intervening

claims. The statement of reasons for the indication of allowable subject matter

for these objected claims is the same reason claims 1-11, 12-27, 28, 56-68 and

69 are allowed above.

Claim Rejections - 35 USC § 103

4.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for

all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or
> described as set forth in section 102 of this title, if the differences between the subject
> matter sought to be patented and the prior art are such that the subject matter as a whole
> would have been obvious at the time the invention was made to a person having ordinary
> skill in the art to which said subject matter pertains. Patentability shall not be negatived by
> the manner in which the invention was made.

5.   Claims 29, 37, 38, 41, 49, 50, 51, 55, 70, 72 and 74 are rejected under

35 U.S.C. 103(a) as being unpatentable over Kumaki (U.S. Patent Number

6,219,716) in view of Sebastian (U.S. Patent Number 6,253,264).

As per claims 29, 37, 38, 55, 70 and 74: <u>Kumaki</u> disclosed a method program and a system for bidirectional transfer of encoded data sets, which are then expanded using an expansion function at the destination network device. <u>See Title, Abstract and Figure 3</u>. <u>Kumaki</u> disclosed plurality of devices communicating through a communication medium where first and second device in the network comprised a compression unit/function for compressing data sets and an expansion unit for expanding the compressed data sets. <u>See Figure 3.</u> <u>Kumaki</u> further addressed a system and apparatus for encoding and/ or compressing and expanding data in order to minimize the cost of bandwidth when transmitting requested data content in a communication network. <u>See Column 1 Line 66 through Column 2 Line18</u>. <u>Kumaki</u> disclosed detailed process of encoding and compressing data sets in a communication device and transmitting the compressed data set to the destination device and at the destination device expanding the encoded/compressed data set accordingly. <u>See Figures 3-4, Column 2 Lines 65 and Column 3 Lines 1-41.</u>

As per claims 41 and 72: a first communication component configured to compress the encoded data set using a content compression algorithm before communicating the encoded data set to the first device, and a second communication component configured to decompress the encoded data set before the first device receives the encoded data set. [See Figures 3-4 and Column 2 Line 36 through Column 3 Line 41: <u>Kumaki </u>disclosed a content compressing unit compressing the encoded data set prior to transmitting to the

destination device and further disclosed a decompression/ expansion unit for

decoding the encoded data prior to receiving the data set at the destination

device].

As per claim 51: wherein the second device encodes the entire data set

with the compression function and communicates the encoded data set to the

first device. [See Figure 4 (also disclosed below on page 6), Kumaki further

disclosed compressing the whole content data using the compression unit and

transmits the encoded content data to the receiving destination device].

Kumaki substantially disclosed the invention as claimed. However,

Kumaki failed to teach selecting or identifying a compression function

according the information that is common to the individual records in the data

sets/groups and similarly making use of an expansion function having therein

a semantic information that is common to the individual records in the
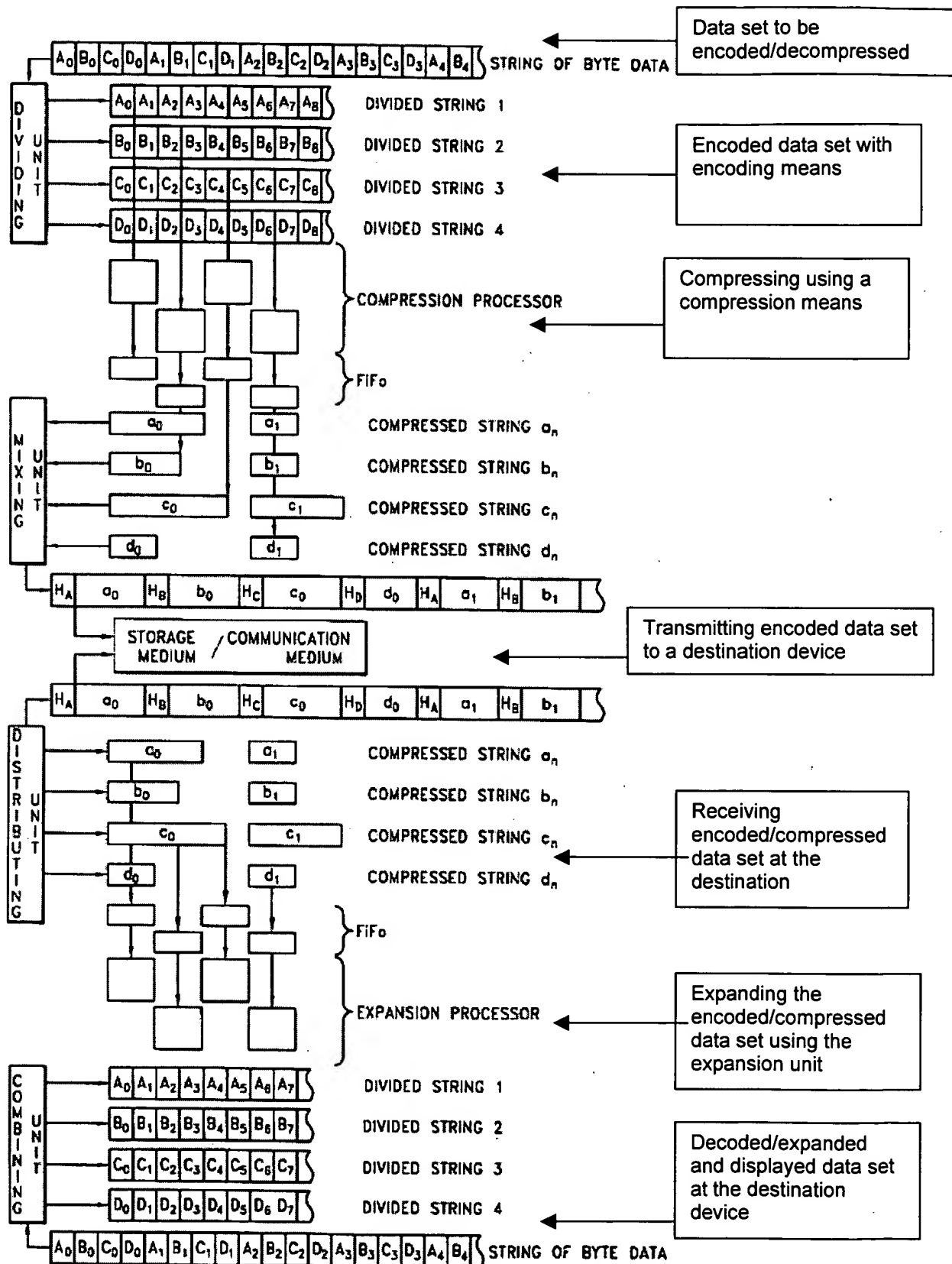
compressed data set.

FIG. 4

An artisan working with the invention of Kumaki related to compression and expansion of data sets in a communication network would have been motivated to look for teachings that may have allowed other means of compression and expansion scheme used in the art of the vast encoding, compression, decompression and expansion teachings. As evidenced by the teachings of Sebastian, determining a compression function according to the common data types in a data set and expanding the compressed data set according the common data types in the compressed data set before or after a demand for the data set was known in the art at the time the invention was made. See Title, Abstract, Column 2 Lines 33-47. Thus, it is respectfully submitted that it would have been obvious to one of ordinary skill in the art at the time the invention was made to take the teachings of Sebastian related to identifying/determining a compression and expansion function/algorithm according to the common data type in a data set and have modified the teachings of Kumaki related to compression and expansion of data sets in a communication network in order to improve the predetermined single format of compression/expansion with a generalized method that could be adapted to many common data types with respective compressing and expanding functions. See Column 1 Lines 23-26 and Column 2 Lines 33-47.

6.   Claims 35, 52 and 53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kumaki (U.S. Patent Number 6,219,716) in view of

Sebastian (U.S. Patent Number 6,253264) further in view of Ejima (U.S. Patent Number 6,420,980).

The already combined teachings of Kumaki and Sebastian substantially disclosed the invention as claimed (as applied to claims 29, 37, 38, 55, 70 and 74). However, was silent about the details of "removing the information that is common to the individual records in the data set", "removing only the information that is common to the individual records in the data set", and "wherein the encoded data set includes the data without the information/semantic information that is common to the individual records in the data set" (claims 35, 52 and 53). However, these specify functional limitations are commonly known and widely implemented schemes of compression and decompressing data sets in a communication network. In these arts, Ejima taught lossless compression encoding by deleting the common information in the data set and encoding the remaining data using a compression/encoding means as an upper part of the data set and decoding the encoded data part using the decoding function ("Huffman decoding") partially encoding sets of data in the data set. See Column 3 Lines 3-60. Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to take the teachings of Ejima related to removing the commonly appearing information part of the data set and encoding the remaining non common information and have modified the already combined teachings of Kumaki and Sebastian in order to efficiently increase the

transmission rate when transmitting data sets between network devices in a

communication network.

7.   Claims 36 and 54 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Kumaki (U.S. Patent Number 6,219,716) in view of

Sebastian (U.S. Patent Number 6,253264) further in view of Grover et al. (U.S.

Patent Number 6,420,980) hereinafter referred to as Grover.

With respect to the rejection applied to claims 29, 37, 38, 55, 70 above,

the already combined teachings of Kumaki and Sebastian substantially

disclosed the invention as claimed. However, failed to teach, "to not encode the

data with compression function and wherein the information that is common to

the individual records in the data set is encoded with the compression

function". However, these features are commonly practiced and known features

in the art of computer communication networks and more specifically in

compression and decompression of information data content. For example, as

evidenced by the teaching of Grover (U.S. Patent Number 5,023,869), encoding

mechanism that permits a partial Huffman encoding by encoding only the

commonly repeating information in the data record extracting redundancy was

disclosed (See Column 3 Lines 39-61). Thus it is respectfully submitted that it

would have been obvious to one of ordinary skill in the art at the time the

invention was made to take the teachings of Grover related to partial encoding

and compression and have modified the already combined teachings of Kumaki
and Sebastian "so that the number of symbols of transmission for a given
amount of source information is reduce". See Column 3 Lines 47-49.

8.   Claims 31-34 and 45-48 are rejected under 35 U.S.C. 103(a) as being
unpatentable over Kumaki (U.S. Patent Number 6,219,716) in view of
Sebastian (U.S. Patent Number 6,253264) further in view of Booth (U.S. Patent
Number 6,345,307).

The already combined teachings of Kumaki and Sebastian substantially
disclosed the invention as claimed (as applied to claims 29, 37, 38, 55, 70 and
74). However, was silent about rendering text and/or image data during
expansion of the encoded data with codwords describing the image or text data
where the codwords representing the common data contents may be grater
than the text or image of the records. However, as evidenced by the teachings
of Booth, rendering text and/or image data during expansion of the encoded
data with codwords describing the image or text data where the codwords
representing the common data contents may be grater than the text or image of
the records was known in the art at the time the invention was made. See
Figures 1-4, Column 4 Line 28 through Column 6 Line 39 and Column 10 Line
30 through Column 11 Line 13. Therefore, it is respectfully submitted that it
would have been obvious to one of ordinary skill in the art at the time of the
invention to take the teachings of Booth related to data set comprising text and

image data and the rendering of such contents before and/or after the

expansion of the encoded data set and have modified the already combined

teachings of <u>Kumaki</u> and <u>Sebastian</u> in order to reduce the amount of

bandwidth required to communicate data contents among communication

devices. See Column 2 Lines 43-45.

Conclusion

9.   The prior art made of record and not relied upon is considered pertinent

to applicant's disclosure.

a.   <u>Rust et al</u>. (US 6532121 B1) entitled: "Compression algorithm with

embedded meta-data for partial record operation augmented with

expansion joints"

b.   <u>Satoh et al</u>. (US 6529912 B2) entitled: "Data compressing

apparatus and data decompressing apparatus, a data decompressing

method, and a data compressing or decompressing, and a data

compressing or decompressing dictionary creating apparatus and a

computer readable recording medium storing a data compressing

program or a data decompressing program".

c.   <u>Mathur et al</u>. (US 20020156618 A1) entitled: "Compressing

messages on a per semantic component basis while maintaining a degree

of human readability"

d.   Farmer (US 6404431 B1) entitled: "Virtual map store/cartographic

processor"

e.   Suzuki et al. (US 6370536 B1) entitled: "Information management

apparatus and information management program recording medium for

compressing paragraph information"

f.   Trout (US 6301394 B1) entitled: "Method and apparatus for

compressing data"

g.   Crandall (US 5999949 A) entitled: "Text file compression system

utilizing word terminators"

h.   Pattison et al. (US 5999936 A) entitled: "Method and apparatus for

compressing and decompressing sequential records in a computer

system"

i.   Suzuki et al. (US 5862347 A) entitled: "Information display system,

information distributor and information display apparatus"

j.   Harvell (US 5831558 A) entitled: "Method of compressing and

decompressing data in a computer system by encoding data using a data

dictionary"

Foreign Patent Document

k.   Hitachi Eng CO LTD (JP 07184194 A) entitled: "Image data

transmission method for operating state of plant, topography figure on

map database and computer controlled system - displays output image

data into client as produced by server through inquiry made by client which transmits image data compressed according to chosen optimum compression data and expanded by server

Non-Patent Literature

l.   Witten et al., "Semantic and generative models for lossy text compression", The Computer Journal, Volume 37, Issue 2, 1994

m.   N.J. Larsson, "Structures of String Matching and Data Compression", Ph.D. Dissertation, Dept. of Computer Science, Lund University, Sweden, 1999.

n.   Apostolico et al., "Off-line compression by greedy textual substitution. Proc", IEEE, 2000, pp: 1733- 1744.

10.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yemane M. Gerezgiher whose telephone number is (571) 272-3927. The examiner can normally be reached on 9:00 AM - 6:00 PM Mon - Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wiley can be reached at (571) 272-3923. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from

the Patent Application Information Retrieval (PAIR) system. Status information

for published applications may be obtained from either Private PAIR or Public

PAIR. Status information for unpublished applications is available through

Private PAIR only. For more information about the PAIR system, see

http://pair-direct.uspto.gov. Should you have questions on access to the

Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-

9197 (toll-free).

Yemane M. Gerezgiher
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